## AMENDMENTS TO THE CLAIMS

This listing of the claims replaces all prior versions, and listings, of claims in the application:

## LISTING OF CLAIMS

1. [Currently Amended] A method for controlling ~~phase delay (chromatic dispersion & polarization mode~~ dispersion~~)~~ of light propagating within an optical waveguide comprising a core ~~substantially axi-symmetrically~~ surrounded by a cladding having a substantially fixed index of refraction, the method comprising a step of:

controlling ~~optical characteristics of~~ a differential group delay of light reflected by a grating within the ~~core~~ waveguide by varying a refractive index of a variable-index material surrounding the cladding at least in a control region of the waveguide proximal to ~~the vicinity of~~ the grating ~~at an optical waveguide region~~ and having a ~~radial thickness of the~~ cladding thickness which is less than a penetration depth of an evanescent field of light propagating in the ~~waveguide core~~grating.

2. [Currently Amended] An optical device for controlling ~~propagation~~ dispersion of light propagating within an optical waveguide comprising a core ~~substantially axi-symmetrically~~ surrounded by a cladding having a substantially fixed index of refraction, the optical device comprising:

a control region of the optical waveguide in which a ~~radial~~ thickness of the cladding is less than a penetration depth of an evanescent field of light propagating in the waveguide core;

a grating within the core of the control region;

a variable-index material surrounding the cladding at least in the vicinity of the grating, the variable-index material having an index of refraction that is controllable in response to an applied stimulus; and

a controller adapted to control a differential group delay of light reflected by the grating by controllably applying the stimulus to the variable-index material at least in the vicinity of the grating.

3. [CANCELLED]

4. [NEW] A method as claimed in claim 1, wherein the variable index material is a birefringent material.

5. [NEW] A method as claimed in claim 1, wherein the grating is chirped, and wherein the step of controlling the group delay of light reflected by the grating comprises a step of applying a voltage to the variable index material, a magnitude of the voltage being substantially uniform along the length of the grating.

6. [NEW] A method as claimed in claim 1, wherein the grating is uniform, and wherein the step of controlling the group delay of light reflected by the grating comprises a step of applying a voltage to the variable index material, a magnitude of the voltage defining a voltage gradient along the length of the grating.

7. [NEW] An optical device as claimed in claim 2, wherein the variable index material is a birefringent material.

8. [NEW] An optical device as claimed in claim 2, wherein the grating extends beyond an end of the control region.

9. [NEW] An optical device as claimed in claim 2, wherein the variable-index material is an electro-optic material responsive to an applied voltage, and wherein the controller comprises:

at least one pair of electrodes in electrical contact with the variable index material and disposed on opposite sides of the waveguide; and

a voltage source for applying a selected voltage across the pair of electrodes.

10. An optical device as claimed in claim 9, wherein the grating is uniform, and wherein there are at least two pairs of electrodes disposed along the length of the grating, each pair of electrodes being connected to the voltage source to receive respective different voltages, so as to produce a voltage gradient along the grating.

11. An optical device as claimed in claim 9, wherein the grating is chirped, and wherein a single pair of electrodes extend along at least of portion of the grating such that a substantially uniform voltage is applied along the grating.